



Environmental Protection Department

The Environmental Protection Department (EPD) is the lead organization for operational environmental support at the Laboratory. We are responsible for environmental monitoring, regulatory compliance, groundwater cleanup and environmental restoration, and hazardous and radioactive waste management. One of our continuing challenges is to clean up the past contamination at LLNL sites effectively until they meet environmental standards. At the same time, we ensure that current research projects meet all applicable environmental regulations and do not adversely affect the surrounding environment, the community, and Laboratory workers. This includes carefully monitoring all chemicals used at the Laboratory to ensure that they are handled and disposed of properly. Our program is responsible for instituting state-of-the-art environmental practices to ensure that LLNL continues to protect the environment.

Work performed under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

For more information contact:

Bert Hoffman, Manager, Environmental Community Relations
700 East Ave. L-797
Livermore, CA, 94551
925-424-4026

or visit:
<http://www.evsinfo.llnl.gov/>

Environmental Monitoring

Ambient air monitoring is performed to evaluate compliance with local, state, and federal laws and regulations to ensure human health and the environment are protected from hazardous and radioactive air emissions. In general, the airborne substances for which LLNL monitors are at levels far below regulatory standards.



(Left) A technician analyzes collected samples for the presence of tritium, a radioactive isotope of hydrogen.



(Right) Air is sampled for beryllium and radioactivity, such as plutonium, uranium, and gamma-emitting isotopes, which can travel through the air as particles.



(Above) The content of volatile organic compounds in print press inks is monitored to ensure we meet the local air district permit conditions.



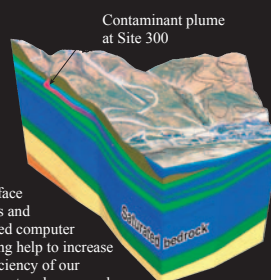
(Right) As part of our storm water management efforts, technicians prepare for confined-entry into a monitoring vault created to ensure wastewater discharges from LLNL meet pH discharge limits.

Environmental Restoration

Drilling, testing, and evaluating the underground hydrogeology and geochemistry are ongoing functions of environmental restoration.



(Above) LLNL's consultant paleontologist worked with the Environmental Protection Department's archaeologists, geologists, and biologists to recover mammoth bones during the construction of the National Ignition Facility.



Subsurface analysis and enhanced computer modeling help to increase the efficiency of our groundwater cleanup and remediation activities.

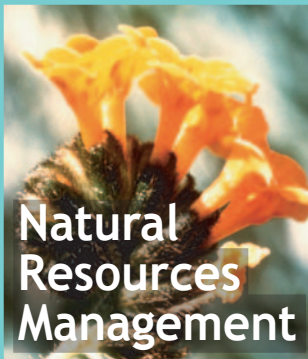
(Below) The gasoline additive, MTBE, is highly mobile and resistant to biodegradation. Our microcosm studies of MTBE evaluate small samples of sediment and groundwater from California sites known to contain leaking underground fuel tanks. Our goal is to understand how biodegradation can be predicted and promoted.



(Above) Multidisciplinary teams work together to deploy and test innovative technologies to clean up source area sediments. Clean up is being accomplished by ground water and soil vapor extraction and treatment.

Natural Resources Management

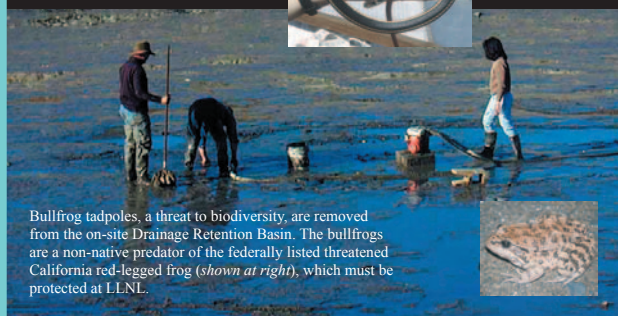
The Site 300 population of endangered large-flowered fiddleneck (above) is one of only two known to exist today. A preserve has been established to conduct research that may lead to its recovery and further protection of its habitat.



LLNL wildlife biologists are researching and monitoring two special-status birds of prey: the western burrowing owl (right) and the white-tailed kite (below). Leg bands are used to identify individuals and collect data on site fidelity, pair bonds, territory, home range, and dispersal.



The highly specialized habitat of the Alameda whip snake (below) contributes to its listing as a federally threatened species. Site 300 has roughly 150 acres of this patchy scrub habitat, and careful resource management such as prescribed burns help protect snake populations.



Bullfrog tadpoles, a threat to biodiversity, are removed from the on-site Drainage Retention Basin. The bullfrogs are a non-native predator of the federally listed threatened California red-legged frog (shown at right), which must be protected at LLNL.

Waste Management

The Decontamination and Waste Treatment Facility is a complex of buildings used to safely and cost-effectively manage radioactive and hazardous wastes.



Our responsibility includes developing innovative solutions for hazardous waste handling, stabilization, treatment, certification, and disposal. (Above) A researcher is investigating a safe process for converting unstable, depleted metallic uranium wastes into a form suitable for stabilization or other permitted treatment processes.



(Above) Low-level radioactive waste is prepared for shipment to approved disposal sites.